

What is claimed is:

1. A printer firmware installation method for installing firmware from an upper-level apparatus to a printer through a network comprising the steps of:

5 receiving each block of said firmware consisting of a plurality of blocks;

storing said each received block to a storage means;

judging a guarantee range of the installed blocks using the data stored in said storage means when resuming said  
10 installation after an interruption of said installation;  
and

informing said judged guarantee range to said upper-level apparatus to resume said installation.

15 2. The printer firmware installation method according to claim 1, further comprising the step of:

resuming to install said firmware to said printer from the succeeding transfer block of the guarantee range in accordance with said guarantee range.

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3. The printer firmware installation method according to claim 1, wherein said receiving step comprises a step of receiving firmware management information and each block of the firmware entity,

25 and wherein said judging step comprises a step of judging said guarantee range of said installed blocks using said received management information and data stored in

said storage means.

4. The printer firmware installation method according to claim 3, wherein said receiving step comprises:

5 a first reception step of receiving said firmware management information; and

a second reception step of receiving said each block of the firmware entity,

and wherein said judging step comprises a step of judging  
10 said guarantee range of said installed blocks using said received management information and data stored in said storage means.

5. The printer firmware installation method according  
15 to claim 3, wherein said receiving step comprises a step of receiving blocks each consisting of firmware management information on said each firmware block and the firmware entity,

and wherein said judging step comprises a step of  
20 judging said guarantee range of said installed blocks using management information extracted from said each received block and data stored in said storage means.

6. The printer firmware installation method according  
25 to claim 1, further comprising the steps of:

informing an installation interruption to said upper-level apparatus from said printer; and

informing an installation resumption to said upper-level apparatus from said printer.

7. A printer for printing data to print medium based  
5 on control according to a firmware comprising:

storage means for storing said firmware;

communication means for receiving each block of said firmware consisting of a plurality of blocks from a upper-level apparatus; and

10 processing means for processing said received block, storing into said storage means,

wherein, said processing means judges a guarantee range of the installed blocks using a data stored in said storage means when resuming said installation after an  
15 interruption of said installation, and informs said upper-level apparatus of said guarantee range to resume said installation.

8. The printer according to claim 7,

20 wherein said communication means receives firmware management information and each block of the firmware entity, and

said processing means judges a guarantee range of said installed blocks using said received firmware  
25 management information and data stored in said storage means.

9. The printer according to claim 8,

wherein said processing means stores said received  
firmware management information into said storage means,  
receives each block of the firmware entity, and judges said  
5 guarantee range of said installed blocks using said  
received firmware management information and data stored  
in said storage means.

10. The printer according to claim 8,

10 wherein said processing means receives blocks each  
comprising of firmware management information on said each  
firmware block and the firmware entity; extracts said  
firmware management information to store into said storage  
means; and judges said guarantee range of said installed  
15 blocks using said firmware management information  
extracted from said each received block and data stored  
in said storage means.

11. The printer according to claim 7,

20 wherein said processing means informs said upper-level  
apparatus of an installation interruption signal; and  
informs said upper-level apparatus of an installation  
resumption signal.

25 12. The printer according to claim 11,

wherein said processing means starts to print said  
print data and interrupts said installation when receiving

a print data, and informs said upper-level apparatus of said interruption signal.

13. The printer according to claim 11,

5 wherein said processing means performs a processing corresponding to a printer operation and interrupts said installation when detecting said printer operation; and informs said upper-level apparatus of said interruption signal.

10 14. A printer system comprising:

a printer for printing according to a print order received through a network; and

upper-level apparatus for installing firmware to said 15 printer through said network,

wherein said printer comprises:

storage means for storing said received firmware consisting of a plurality of blocks;

communication means for receiving each block of said 20 firmware consisting of a plurality of blocks from said upper-level apparatus; and

processing means for processing said received block and storing into said storage means after the reception,

wherein said processing means judges a guarantee range 25 of the installed blocks using a data stored in said storage means when resuming said installation after an interruption of said installation, and informs said upper-level

apparatus of said guarantee range, and wherein

said upper-level apparatus restarts to install said firmware from the succeeding transfer block of said guarantee range.

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15. The printer system according to claim 14, wherein said upper-level apparatus sends firmware management information and said each block of the firmware entity to said printer; and

10 said printer judges said guarantee range of said installed blocks using said received firmware management information and data stored in said storage means.

16. The printer system according to claim 15, wherein 15 said upper-level apparatus sends said firmware management information; and then sends said each block of the firmware entity; and

said printer judges said guarantee range of said installed blocks using said received firmware management 20 information and data stored in said storage means.

17. The printer system according to claim 15, wherein said upper-level apparatus sends blocks each consisting of said firmware management information on each firmware 25 block and the firmware entity; and

said printer judges said guarantee range of said installed blocks using said firmware management

information extracted from said received block and data stored in said storage means.

18. The printer system according to claim 14, wherein  
5 said upper-level apparatus interrupts said installation according to an interruption signal received from said printer; and resumes said installation according to a resumption signal received from said printer.

10 19. The printer system according to claim 18, wherein said printer starts to print said print data when detecting to receive print data; and informs said upper-level apparatus of said interruption signal.

15 20. The printer system according to claim 18, wherein said printer performs a processing corresponding to a printer operation in response with said printer operation; and informs said upper-level apparatus of said interruption signal.

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